

# **ATTACHMENT 3**

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**UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN JOSE DIVISION**

CISCO SYSTEMS, INC.,

Plaintiff,

v.

ARISTA NETWORKS, INC.,

Defendant.

Case No. 5:14-cv-05344-BLF (PSG)

**REBUTTAL EXPERT REPORT OF KEVIN ALMEROTH**

**SUBMITTED ON BEHALF OF CISCO SYSTEMS, INC.**

**CONTAINS HIGHLY CONFIDENTIAL – ATTORNEYS’ EYES ONLY INFORMATION**

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“As previously mentioned, once an Ethernet [sic] was deployed and made operational in a customer location, it would not be unusual to have three or more protocols running over the same Ethernet, each supporting a separate group of computing systems and associated devices. The effect of this ‘ships in the night’ phenomenon was to introduce additional operational complexity on the network engineers assigned to keep everything working properly.”<sup>29</sup>

61. Mr. Seifert’s discussion of Ethernet protocols is irrelevant and actually highlights the critical difference between networking protocols such as Ethernet and the creative user interfaces that may be used to configure Ethernet equipment such as CLIs and GUIs. His discussion has nothing to do with CLI command expressions, output elements, documentation, or any other copyrighted elements that Arista has copied from Cisco. None of these elements—which frame the basis for Cisco’s copyright infringement claims—are relevant to Ethernet protocol functionality. To the extent Mr. Seifert is attempting to suggest that having different Ethernet protocols is similar to having different user interfaces for network devices, he is comparing apples to oranges, and I disagree that such a comparison is relevant at all.

62. Mr. Seifert also gives some significance to the fact that the term “industry standard” may appear in certain documents. I disagree with Mr. Seifert and his opinions that rely on putting any significance on these documents, given the context and nature of those documents. In my opinion, as I discussed in my opening report, informed by my experience as a technologist active in standards development as well as by common sense and customary use of the English language, the use of terms like “industry standard” and “industry leading” in marketing materials is Cisco’s way of explaining that it is offering its proprietary (and successful) CLI along with its network devices. This is akin to promoting a product or

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<sup>29</sup> Seifert Para. 67.

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technology as an industry-leading, gold standard not as a “de facto” industry standard.<sup>30</sup>

Moreover, Cisco should not be penalized for creating a product that is popular and a market-leader; if anything, the incentive for creating such products (like IOS and its CLI) should flow the other way.

63. The facts relating to the products in the industry confirm that CLIs are not used as part of any “de facto” industry standard to support interoperability between different networking devices or to provide a common way of operating or configuring routers and switches across multiple vendors. This is confirmed by the fact that Cisco has never committed its CLI to an industry standard; Cisco’s IOS CLI has never been adopted by an SSO; and there are many vendors offering different user interfaces (*e.g.*, Juniper) in the networking industry, including even Arista, who offers a Linux interface as an alternative to the CLI it copied from Cisco. Furthermore, many elements that Arista copied are not even alleged to be part of any standard. For example, the technical documents Arista has admitted to copying are not alleged to be part of a standard. Neither are the outputs or command help descriptions.

64. Finally, Mr. Seifert claims that “Cisco was not only calling its CLI an “industry standard” to sell products; it actually believed it.”<sup>31</sup> This is not correct, to the extent that Mr. Seifert is suggesting that Cisco was dedicating its CLI to the public as part of an industry standard. Cisco has sued to enforce its copyrights over its CLI in the past, confirming that Cisco

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<sup>30</sup> Seifert Para. 75-77; Roy Deposition Tr. at 184:17-21 (“Q. Okay. Have you ever heard people within Cisco refer to the Cisco CLI as a de facto industry standard? A. I have heard people say Cisco has industry-leading CLI, but not exactly the standard phrase which you are citing.”); Jiandani Deposition Tr. at 154:12-17 (“Q. Do you consider Cisco’s CLI to be a competitive advantage to Cisco? A. I view it to be a gold standard. So it’s one where we are popular products. We have – we have these -- many people use these products. So they’ve become a gold standard in the industry.”); Pletcher Deposition Tr. at 211; *see also* [http://www.cisco.com/c/dam/en\\_us/solutions/industries/docs/gov/cisco\\_csr\\_in\\_aws\\_whitepaper.pdf](http://www.cisco.com/c/dam/en_us/solutions/industries/docs/gov/cisco_csr_in_aws_whitepaper.pdf) (“industry-leading Cisco IOS®”).

<sup>31</sup> Seifert Para. 78.

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has always believed that its copyrighted works and IOS CLI are proprietary to Cisco. In fact, when Cisco learned that Huawei copied Cisco’s IOS CLI, Cisco sued Huawei for copyright infringement, and Huawei was forced to change its CLI as a result of that litigation.<sup>32</sup> The same is true here. When Cisco learned of Arista’s widespread infringement, it sued to enforce its property rights.<sup>33</sup> And the intellectual property rights at issue here are not just commands, as Mr. Seifert seems to suggest—Cisco has alleged (and I have found) widespread copying of technical documents, command outputs, hierarchies, modes, prompts, and help screens—which shows that Arista has copied the entire look and feel of Cisco’s IOS CLI.

65. I also have reviewed Mr. Seifert’s conclusions regarding his understanding of the “history” of Cisco’s CLI.<sup>34</sup> To the extent that Mr. Seifert is attempting to suggest that Cisco’s copyrighted works and IOS CLI are not original or were not created by Cisco, I disagree. As I stated in my opening report, it is my opinion, and all of the available evidence indicates, that the Cisco copyrighted work including Cisco’s IOS CLI are original works. As I explained in my opening report, Cisco has provided an incredible amount of detailed evidence showing that even down to the asserted multi-word command expressions, Cisco created them as well as the documentations, hierarchies, modes, prompts, screen outputs, and help descriptions associated with Cisco’s IOS CLI.

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<sup>32</sup> I disagree with Mr. Seifert’s statement that “the message to the industry surrounding the Huawei litigation was that Cisco would enforce its IP rights in its source code, but if all one did was use CLI commands, Cisco had no dispute with such conduct.” Seifert Para. 84. If Mr. Seifert had read the Huawei complaint or related documents, he would know this is not true. Cisco certainly alleged that Huawei stole Cisco’s source code, but that was just one element of the case. Cisco also claimed infringement of its commands and Huawei in fact changed its commands as a result of the litigation. Mr. Seifert’s statement is therefore just factually wrong, and his conclusions stemming from his misunderstanding are wrong as well.

<sup>33</sup> Seifert Para. 84.

<sup>34</sup> Seifert Para. 70.

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intentional copying like Arista has. Even the “evidence” of other vendors’ use of similar multi-word command expressions relied on by Ms. Elsten (and other Arista experts) shows that Arista’s use of Cisco’s multi-word command expressions is distinctively high when compared to others in the market. And command expressions are just one of Cisco’s copyrighted works that Arista copied. Ms. Elsten does not account for the other copyrighted elements Arista copied to create a clone of Cisco’s user interface, nor does she address whether she believes others in the market also copied those elements.

69. Ms. Elsten also states: “It is also important to note that where a command is not present in another vendor’s CLI, that vendor may not support the feature or features corresponding to that command—in other words, the vendor may use no command for that feature because it does not offer the feature, as opposed to using a different command.”<sup>37</sup> This may very well be true, but Ms. Elsten provides no evidence to support it. So it is impossible to know what “vendor” she is referring to; what command she is thinking about; how prevalent such a factor might be; etc.

70. Like Mr. Seifert, Ms. Elsten commented on Cisco’s Huawei settlement. By doing so, Ms. Elsten appears to be suggesting that although Arista might have copied Cisco, it has done so in a way that is acceptable to Cisco.<sup>38</sup> I disagree. She ignores all of the evidence that Arista intentionally copied Cisco in order to create a clone of Cisco’s IOS. And in Arista’s effort to clone IOS, Arista copied much of what is needed to understand and use a switch—from documents to screen outputs to help outputs to commands (etc.). To suggest that Arista’s copying might be acceptable based on a nearly exclusive focus counting command expressions

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<sup>37</sup> Elsten at 29.

<sup>38</sup> Elsten at 32.

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thus ignores the intentional copying of the entire look and feel of IOS, as well as all of the other elements that Arista copied beyond the commands.

71. Ms. Elsten’s focus on “5%” of command copying also is misleading. It ignores the fact that the earlier versions of EOS show command overlap in the 50-60% range, which is far greater than the 10-20% range Ms. Elsten uses. And the reason that—if taken as true—the command overlap might be 5% today is because Arista added commands over time which has “hidden” just how extensive its copying was; it ignores that, for example, there are many single word/letter/character commands that are irrelevant to the case because all of the commands at issue here are multi-word command expressions; and it ignores that today’s version of EOS is merely a derivation of the original EOS versions that show copying in some instance of over 60%, which shows that what Arista copied was important to Arista. I provide further details on this topic below in connection with my discussion of Dr. Black’s report.

72. Like Mr. Seifert, Ms. Elsten comments on the benefits of “standardization” and identifies four such “benefits.”<sup>39</sup> While I do not disagree as a general matter that for certain technologies standardization can be beneficial, to the extent that Ms. Elsten suggests that any of the benefits she identifies bear on CLIs, I disagree. For example, having an industry standard CLI would not “[a]llow equipment made by different companies to work together” nor would it “[p]rovide an indication of performance expectation.”<sup>40</sup> Neither would it “[p]rovide a base level of known quality for some aspects of operation.” A CLI is simply not relevant for these considerations. For example, equipment made by different companies, including those with different CLIs, work together in existing networks. Even to the extent an efficient CLI can affect performance, that would be a consideration based on the design of the CLI and not because

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<sup>39</sup> Elsten at 34.

<sup>40</sup> Elsten at 34.

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different equipment shared the same CLI. Finally, Ms. Elsten’s last comment does not really make sense, not least of all for the reason that she does not identify whose expectations she is describing. More importantly, CLIs do not provide indications of expectations, period. As I explained above and in my opening report, there is no need for an industry standard CLI. And that is evident by the fact that no SSO has ever adopted one, and there is diversity among CLIs. In my opinion, the message to the networking industry from the SSOs is clear: you can use the industry standard networking protocols to interoperate, but you are free to develop your own user interfaces (whether it is CLI or GUI or another type of interface) to compete in the marketplace and offer distinct value propositions to customers.<sup>41</sup>

73. Ms. Elsten also comments on the fact that documents that may refer to Cisco’s IOS as “industry standard.”<sup>42</sup> I disagree with Ms. Elsten’s opinions and comments. As a general matter, Ms. Elsten makes the same observations as Mr. Seifert, which I discussed previously. Since I explained why Mr. Seifert is wrong above, I incorporate those critiques and opinions here by reference. Moreover, Ms. Elsten conveniently overlooks that the documents she focuses on clearly indicate that Cisco believed its IOS to be proprietary—it has copyright notices that tell the reader that Cisco claims ownership in the works discussed in the document, *e.g.*, “All contents are Copyright © 1992–2006 Cisco Systems, Inc. All rights reserved. Important Notices and Privacy Statement.”; “© 2006 Cisco Systems, Inc. All rights reserved.”; and “Copyright 2006 Cisco Systems, Inc. All rights reserved.”

74. Ms. Elsten opines that “Cisco also created several white papers for the Cisco IOS that discussed the “industry-standard” nature of the command-line interface. For example, Cisco

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<sup>41</sup> Almeroth Opening Report Section VII (discussing various interface options vendors can employ).

<sup>42</sup> Elsten at 34-35.



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white papers for the Cisco IOS XR 2.0 and 3.0 releases both promoted the CLI as industry standard to its customers.”<sup>43</sup> I disagree with Ms. Elsten’s interpretation of this document. The term “modular” is used to describe Cisco’s CLI (not “industry standard”). Nevertheless, even if Ms. Elsten’s reading of the “white paper” was correct, for the reasons stated previously in this report and in my opening report, I disagree that has any bearing on whether or not the Cisco copyrighted works and IOS CLI are part of any industry standard.

75. Finally, Ms. Elsten states (by citing to testimony from two former Cisco employees) that Cisco regarded its CLI as an industry standard.<sup>44</sup> I disagree with Ms. Elsten. As I stated in my opening report,<sup>45</sup> the overwhelming evidence shows that there is no industry standard CLI,<sup>46</sup> and I have seen no evidence to suggest that Cisco ever proposed its CLI to a standards-setting body or that Cisco requires others in the industry to use its CLI. According to

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<sup>43</sup> Elsten at 35.

<sup>44</sup> Elsten at 35.

<sup>45</sup> See Almeroth Opening Report at Section VII.

<sup>46</sup> See, e.g., Deposition Testimony of Jayshree Ullal (Arista President & CEO) at 68:14-69:4, 208:7-210:16, 217:11-21, 223:12-19; Deposition Testimony of Kenneth Duda (Arista CTO & SVP of Software Engineering) at 58:8-59:24, 70:4-17, 73:23-75:16, 93:20-95:2, 195:18-197:8, 323:22-324:19, 326:6-329:11; Deposition Testimony of Anshul Sadana (Arista SVP of Customer Engineering) at 93:20-103:4, 281:12-20, 108:17-109:4, 242:17-247:19, 267:2-271:24, 272:24-273:5; Deposition Testimony of Adam Sweeney (Arista VP of Software Engineering) at 257:12-17, 159:9-160:9, 161:8-16, 161:25-162:7, 163:12-164:2, 165:1-6; Deposition Testimony of Lincoln Dale (Arista Distinguished Engineer) at 272:20-274:24, 215:23-216:7, 216:14-217:4, 222:4-13; Deposition Testimony of Hugh Holbrook (Arista VP of Software Engineering) at 84:13-17, 147:25-148:13, 248:8-12; Deposition Testimony of Mark Foss (Arista SVP of Global Operations & Marketing) at 100:10-12, 100:23-101:2, 112:11-13; Deposition Testimony of Berly Tr. at 140:25-141:3; Deposition Testimony of Lorenz Redlefsen Tr. at 40:1-9; Deposition Testimony of Dale Deposition; Deposition Testimony of Bechtolsheim; Deposition Testimony of Lang; Deposition Testimony of Berly; Deposition Testimony of Giancarlo; Deposition Testimony of Foss; Deposition Testimony of Hull; Deposition Testimony of Pech; Deposition Testimony of Redlefsen; Deposition Testimony of Sollender; *see also* the deposition testimony identified in response to Arista’s Interrogatory No. 21, which is incorporated here by reference.

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Cisco, when the term “industry standard” is used in Cisco’s marketing materials, it refers to “the popularity and quality of Cisco’s CLI in Cisco’s industry leading products.”<sup>47</sup>

### 3. Black

76. According to Dr. Black, what defines a “de facto” industry standard in the context of this case is the “widespread adoption of the disputed CLI functionality across the networking industry.”<sup>48</sup> And according to Dr. Black “[t]he EOS CLI is often referred to as an ‘industry standard’ CLI because some of the more common CLI commands, widely supported by most networking vendors, are supported by EOS.”<sup>49</sup> As explained in more detail throughout this report and in my opening report, I strongly disagree with Dr. Black’s opinions that there is any industry standard CLI. In fact, Dr. Black’s opinions are contradicted by the data he provides in his appendices, which show that there is a great amount of diversity in the industry and that there has not been “widespread” adoption of Cisco’s copyrighted works. Moreover, none of Dr. Black’s appendices address copying in the “industry” with respect to the technical documents, display outputs, or help description outputs, which are all part of Cisco’s copyrighted works.

77. Like Arista’s other experts, Dr. Black also attempts to support his opinions by relying on documents that characterize Cisco’s IOS CLI as an “industry standard.”<sup>50</sup> For the

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<sup>47</sup> See, e.g., Cisco’s responses to Arista’s Interrogatory No. 9; see also, e.g., Roy Deposition Tr. at 184:17-21 (“Q. Okay. Have you ever heard people within Cisco refer to the Cisco CLI as a de facto industry standard? A. I have heard people say Cisco has industry-leading CLI, but not exactly the standard phrase which you are citing.”); Jiandani Deposition Tr. at 154:12-17 (“Q. Do you consider Cisco’s CLI to be a competitive advantage to Cisco? A. I view it to be a gold standard. So it’s one where we are popular products. We have – we have these -- many people use these products. So they’ve become a gold standard in the industry.”); Pletcher Deposition Tr. at 211; see also [http://www.cisco.com/c/dam/en\\_us/solutions/industries/docs/gov/cisco\\_csr\\_in\\_aws\\_whitepaper.pdf](http://www.cisco.com/c/dam/en_us/solutions/industries/docs/gov/cisco_csr_in_aws_whitepaper.pdf) (“industry-leading Cisco IOS®”).

<sup>48</sup> Black Paras. 82, 83, 90.

<sup>49</sup> Black Para. 127.

<sup>50</sup> Black Paras. 124-125.

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102. I disagree with Mr. Seifert and Dr. Black. As I explained in my opening report (which I incorporate here in response by reference), the Cisco copyrighted works are creative and original works.<sup>69</sup> Command expression creation is a subjective endeavor.<sup>70</sup> Command expression creation is impacted by an individual author’s own professional preferences and judgment.<sup>71</sup> Many Cisco and Arista employees/executives have testified under oath that they agree.<sup>72</sup> There is no technical reason that specific words, syntaxes, or expressions must be used by vendors, let alone Cisco’s IOS CLI.<sup>73</sup> The same is true of the various other copyrighted elements that Arista copied, such as the hierarchies, technical documents (which Arista’s experts never addressed), display screens, help screens, and modes/prompts.

103. Furthermore, as I stated in my opening report, command expressions are not purely functional in nature,<sup>74</sup> neither are the other works that Arista has copied. The command expressions at issue are neither particularly efficient nor perfect from any functional perspective either.<sup>75</sup> Arista’s experts have confirmed my opinions as well. Arista’s experts opined that different functionality can be associated with the same command expression in different vendors.<sup>76</sup> In other words, expressions are not programmatically or intrinsically linked to a

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<sup>69</sup> Almeroth Opening Report Paras. 50-52, 101-117, 121.

<sup>70</sup> Almeroth Opening Report Paras. 101-120.

<sup>71</sup> Almeroth Opening Report Paras. 101-120.

<sup>72</sup> Deposition Testimony of Adam Sweeney (Arista VP of Software Engineering) at 175:15-23, 217:12-218:8, 184:5-185:18, 186:21-187:6 (Jan. 29, 2016) (calling the process of command expression creation “very subjective”); Deposition Testimony of Kenneth Duda (Arista CTO & SVP of Software Engineering) at 150:16-151:9, 176:16-177:16, (Feb. 12, 2016); Deposition Testimony of Jayshree Ullal (Arista President & CEO) at 253:14-254:7; Deposition Testimony of Lincoln Dale at 148:19-149:11, 150:4-25, 152:9-25, 153:15-154:9; Anshul Sadana Deposition Tr. at 135:18-136:12, 137:11-138:1, 157:6-24; Depositions of Kirk Loughheed.

<sup>73</sup> Almeroth Opening Report Para. 110, 112.

<sup>74</sup> *E.g.*, Almeroth Opening Report Para. 118.

<sup>75</sup> *Id.*

<sup>76</sup> *E.g.*, Black Paras. 494 (“Moreover, some of the accused commands serve an entirely different functional purpose in Arista EOS than the Cisco IOS command that Cisco contends is

<sup>78</sup> Deposition Testimony of Adam Sweeney (Arista VP of Software Engineering) at 175:15-23 (Jan. 29, 2016).

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[REDACTED]

[REDACTED]

105. I also disagree with Arista’s experts’ opinions that displays are wholly functional in nature.<sup>80</sup> CLI screen displays are textual (sentences and paragraphs) and may also have organizational features (tables, lists). Like any other piece of writing, they are not dictated by anything technical, and are thus unhinged from the functionality underlying a network device. For example, the “help screen” that Arista copied textually and organizationally has no underlying “functional” relevance—it explains to a user when help can be requested and the styles of help offered:

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switch>help
Help may be requested at any point in a command by entering
a question mark '?'. If nothing matches, the help list will
be empty and you must backup until entering a '?' shows the
available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
  command argument (e.g. 'show ?') and describes each possible
  argument.
2. Partial help is provided when an abbreviated argument is entered
  and you want to know what arguments match the input
  (e.g. 'show pr?'.)

```

(Cisco’s IOS Help Screen)

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localhost#help
Help may be requested at any point in a command by entering
a question mark '?'. If nothing matches, the help list will
be empty and you must backup until entering a '?' shows the
available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
  command argument (e.g. 'show ?') and describes each possible
  argument.
2. Partial help is provided when an abbreviated argument is entered
  and you want to know what arguments match the input
  (e.g. 'show pr?'.)
localhost#

```

(Arista’s Identical EOS Help Screen)

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<sup>80</sup> [REDACTED]  
 E.g., Black Para. 192.

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CLI (or the commands that it accepts) is not creative. It is well known that many poetry styles use limited lines of text, syllables, etc., (*e.g.*, haiku, senryū) and yet those are nevertheless creative and expressive. Fourth, this argument does not apply to the copyrighted elements Arista copied that are not command expressions.

108. Dr. Black also contends the Cisco’s Parser Police Manifesto “places several practical and technical constraints on the addition of new CLI commands in Cisco IOS.”<sup>83</sup> I disagree. As I stated in my opening report, the Parser Police allowed for collective discussions of Cisco engineers about word choices for new commands.<sup>84</sup> It was a “very subjective” process:

17 A. It states:  
 18 “That’s why we have this list.”  
 19 Q. And you wrote those words?  
 20 A. I believe so.  
 21 Q. And the list there is the parser-police  
 22 list, correct?  
 23 A. Yes.  
 24 Q. Okay. And can you read the next sentence  
 25 into the record.  
 1 A. It states:  
 2 “Review in this list gives us a chance  
 3 to work towards consistency within this  
 4 very subjective space.”  
 5 Q. And, again, you wrote those words?  
 6 A. I think so.  
 7 Q. And you believe that those are true  
 8 statements?  
 9 A. Yes.  
 10 Q. Okay. And when it says: “very subjective  
 11 space,” what is that referring to?  
 12 A. I assume it means the space of CLI syntax.  
 13 Q. And you say in the next sentence:  
 14 “In my opinion...”  
 15 Can you read that.  
 16 A. “In my opinion, syntax consistency with  
 17 features that have similar function is

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<sup>83</sup> Black Paras. 603-604.

<sup>84</sup> *E.g.*, Almeroth Opening Report Para. 107; Remaker Deposition Tr. at 29:18-31:18.

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18 very important.”<sup>85</sup>

The document called the “Manifesto” itself is merely a set of “guidelines” and “best practices” for the creation of new commands.<sup>86</sup> It is not a rule book that explains how commands must be created—it provides stylistic suggestions.<sup>87</sup> Accordingly, I disagree with Dr. Black’s claim that the Manifesto placed any restraints on command creation—the document itself as well as testimony about the Manifesto prove otherwise.

109. In sum, no standard, protocol, RFP or other technical document dictates the expression of a command expression or the content of any hierarchy, technical document, display screen, help screen, prompt, or mode. Arista’s experts have come forward with no such evidence, and I am not aware of any such evidence.

#### **B. Originality**

110. Mr. Seifert also provided certain opinions relating to the originality of the Cisco copyrighted works, for example:

As discussed further in report Section IV.B below, available evidence indicates that CLIs are sometimes (but not always) identified among dozens of discrete features discussed in customer RFPs for switches of the type at issue.	17
Many aspects of the Cisco CLI are very similar to those defined by Digital’s DCL. Some of Cisco’s keywords are found in even earlier products, such as the Proteon p4200 Gateway. A review of the user manuals from Cisco, Digital, and Proteon from the late-80s/early-90s illustrate commonalities in command structure, hierarchies, keywords, argument lists, etc., particularly with respect to Digital. This is not	63

<sup>85</sup> Deposition Testimony of Adam Sweeney (Arista VP of Software Engineering) at 184:17-185:18 (Jan. 29, 2016).

<sup>86</sup> Remaker Deposition Tr. at 27:11-18:2, 37:4-7; CSI -CLI- 00754391 (“in practice parser -police has no formal ‘clearing’ criteria”; encouraging engineering to “think” and “envision” when developing commands; using dashes instead of underscores “is a purely aesthetic thing”).

<sup>87</sup> *Id.*

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124. Further, with respect to command expressions—the copyrighted element Dr. Black focuses on the most—Arista’s Mr. Sweeney confirmed the creation process is a very subjective process, which negates the possibility that any one expression can merge with any one idea or that expressions are inherently functional or confined by technological constraints:

5 Q. Well, let’s just have that one sentence

6 read in.

7 A. Okay. It states:

8 “I agree that CLI naming is very

9 subjective.”

10 Q. You wrote those words, correct?

11 A. I believe so.

12 Q. And you agree with that statement, true?

13 A. The “very” is maybe a little much, but,

14 yes.

15 Q. Okay. And then you say -- well, why don’t

16 we have you read the next sentence into the record.

17 A. It states:

18 “That’s why we have this list.”

19 Q. And you wrote those words?

20 A. I believe so.

21 Q. And the list there is the parser-police

22 list, correct?

23 A. Yes.

24 Q. Okay. And can you read the next sentence

25 into the record.

1 A. It states:

2 “Review in this list gives us a chance

3 to work towards consistency within this

4 very subjective space.”

5 Q. And, again, you wrote those words?

6 A. I think so.

7 Q. And you believe that those are true

8 statements?

9 A. Yes.

10 Q. Okay. And when it says: “very subjective

11 space,” what is that referring to?

12 A. I assume it means the space of CLI syntax.

13 Q. And you say in the next sentence:

14 “In my opinion...”

15 Can you read that.

16 A. “In my opinion, syntax consistency with

17 features that have similar function is



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18 very important.”<sup>95</sup>

21 Q. If somebody said to you, Mr. Sweeney,  
22 there’s only one way, only one way to express a  
23 command syntax for a particular CLI command to be  
24 used in a -- network equipment, would you agree with  
25 that statement?

1 A. No.

2 Q. And why not?

3 A. ‘Cause it’s not true.

4 Q. And based on your experience, you know

5 it’s not true, true?

6 A. Yes.<sup>96</sup>

125. Many other witnesses have testified similarly, including Kirk Loughheed.<sup>97</sup>

126. For these reasons—as well as the reasons stated in my opening report and in this report—I disagree that the doctrines of *scenes a faire*, merger, or “short phrases” are applicable here.

## VII. FAIR USE

127. I understand that Arista asserts as an affirmative defense the doctrine of “fair use.” I have been informed that a defendant may reproduce another’s copyrighted work if doing so constitutes fair use. I understand in determining whether the use made of a work is a fair use, courts consider: 1. the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; 2. the nature of the copyrighted work; 3. the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and 4. the effect of the use upon the potential market for or value of the copyrighted

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<sup>95</sup> Deposition Testimony of Adam Sweeney (Arista VP of Software Engineering) at 184:5-185:18 (Jan. 29, 2016).

<sup>96</sup> Deposition Testimony of Adam Sweeney (Arista VP of Software Engineering) at 186:21-187:6 (Jan. 29, 2016).

<sup>97</sup> Almeroth Opening Report Para. 112.

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Therefore, the CLI commands at issue represent less than 5% of the CLI commands used for Arista’s switches. As stated earlier, the CLI commands at issue similarly represent less than 5% of those used for Cisco’s switches.	
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130. I disagree with Dr. Black’s and Ms. Elsten’s opinions and conclusions for various reasons, as explained below.

A. **“The purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes.”**

131. I start by noting that neither Dr. Black nor Ms. Elsten contend that Arista’s use of Cisco’s copyrighted works is for one of the enumerated fair use purposes that is protected by the copyright laws—criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research. Neither expert contends that Arista uses Cisco’s copyrighted works for educational purposes or, on the other hand, that Arista does not use Cisco’s copyrighted works for a “commercial” purpose.

132. It also is my understanding that Arista is a for-profit business and does, in fact, use Cisco’s copyrighted works for a commercial purpose.<sup>98</sup> As I explained in my opening report, I understand that Arista provides products, software, and technical support incorporating Cisco’s copyrighted works to its distributors and/or customers so that they use Arista’s EOS and its CLI.<sup>99</sup> As I also explained in my opening report, Arista knows that its distributors and customers purchase its products to use, reproduce, distribute, and/or publicly display EOS.<sup>100</sup> For example, Arista has stated that at least 80% of its customers consider the EOS CLI (which incorporates

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<sup>98</sup> CSI-CL-02099053; CSI-CLI-00355093; CSI-CLI-00355164; CSI-CLI 00358000; CSI-CLI-01300636.

<sup>99</sup> Almeroth Opening Report Para. 256.

<sup>100</sup> *Id.* at Paras. 257-258.

133. I have seen nothing that would suggest to me that Arista's use of Cisco's copyrighted works is different in any way than Cisco's use of those works. The purpose of Arista using Cisco's copyrighted works is the same as Cisco's. Arista has used and continues to use Cisco's copyrighted works in the same type of software as Cisco (a network device operating system), with the same general type of hardware as Cisco (network devices, including switches and routers), to perform many of the same functions as Cisco (routing and switching), and sells to customers in the same or similar ways as Cisco. In fact, Arista's CEO views Cisco as a "fierce competitor" in the market,<sup>104</sup> and if a customer were to purchase an Arista device with EOS they would (to my knowledge) have no reason to also purchase a Cisco device with IOS for the same application. Thus, in my opinion Cisco's copyrighted works and Arista's EOS operating system are used for the same purpose.

[illegible]

<sup>104</sup> *Id.* at Para. 69; CSI-CLI-00357842 at CSI-CLI-00357851

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[REDACTED]

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135. Arista also has explained that it saved development costs by copying Cisco’s copyrighted works: “Since I helped build the enterprise, I would never compete with Cisco directly in the enterprise in a conventional way. It makes no sense. It would take me 15 years and 15,000 engineers, and that’s not a recipe for success.”<sup>107</sup> Arista has further explained that its use of Cisco’s copyrighted CLI was to compete directly with Cisco:

“[A] Cisco CCIE expert would be able to use Arista right away, because we have a similar command-line interface and operational look and feel. Where we don’t have to invent, we don’t.”<sup>108</sup>

Arista has learned to “[p]rovide familiar interfaces to ease adoption” including a “standard CLI that ... retains familiar management commands” so much so that “80% [of Arista customers] tell us they appreciate the way they can leverage their deep [Cisco] IOS experience, as they can easily upgrade an aging [Cisco] Catalyst infrastructure to Arista.”<sup>109</sup>

“Familiar management interfaces, standard CLI ... It’s been very helpful for our customers to be able to rapidly adopt our products and integrate them into their

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<sup>107</sup> See, e.g., Adam Lashinsky, “An Ex-Cisco Exec Reflects,” *Fortune* (Mar. 20, 2014), available at <http://fortune.com/2014/03/20/an-exciscoexec-reflects/>.

<sup>108</sup> John Gallant, “How Arista Networks Got Out In Front of the SDN Craze,” *Network World* (Feb. 22, 2013).

<sup>109</sup> Posting of Kenneth Duda to Arista EOS Central, “Linux as a Switch Operating System: Five Lessons Learned” (Nov. 5, 2013), available at <https://eos.arista.com/linux-as-a-switch-operating-system-five-lessons-learned/>.

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environments ... that our switches provide a familiar management interface so their existing tools and processes, screen scraping, automation, continue to work just as they did before.”<sup>110</sup>

“The familiar EOS command-line interface (CLI) avoids retraining costs.”<sup>111</sup>

136. Dr. Black’s arguments that Arista’s use of Cisco’s copyrighted works is different than Cisco’s use because Arista has developed a different operating system, uses different “merchant silicon,” or because a few commands may have different underlying functionality do not change my opinions. By copying Cisco’s copyrighted works, Arista has cloned—intentionally—the “look and feel” of Cisco’s copyrighted works. A user operating an Arista device would have no knowledge that the underlying code and hardware might be different than Cisco’s—and they would, in my opinion, have no reason to care. The Arista user experience is identical to Cisco’s, and thus Arista is using Cisco’s copyrighted works exactly as Cisco does, and it has done so, according to its own executives, intentionally.<sup>112</sup>

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<sup>110</sup> Arista, *EOS Bits & Bytes - Episode 1 - Lessons Learned While Building a Network OS on Top of Linux*, Arista EOS Central - Video Library (Jan. 30, 2014), at 6:55–7:56, available at <http://eos.arista.com/wpcontent/themes/aristaeos/video-lightbox.php?vid=ttp6lavHKGo>.

<sup>111</sup> Arista, *EOS: An Extensible Operating System*.

<sup>112</sup> See, e.g., Deposition Testimony of Jayshree Ullal (Arista President & CEO) at 304:12-307:24 (defending statements that Arista tries to mimic the “operational look and feel” of Cisco, and that “Where we [Arista] don’t have to invent, we don’t.”); Deposition Testimony of Kenneth Duda (Arista CTO & SVP of Software Engineering) at 45:2-15 (“Arista has many CLI commands in its interface that [were] copied from Cisco’s CLI interface”), 45:24-46:5 (“I don’t know what you mean ‘a coincidence.’ Obviously they were copied. That wasn’t a coincidence, no.”), 47:19-24 (Q: “Mr. Duda, isn’t it true that you and others at Arista slavishly copied the Cisco CLI commands?” A: “I’ve said things to that effect and it’s true in the sense that I meant it.”), 154:3-155:5, 202:17-25, 221:3-24, 234:9-13 (Q: “You’ve told customers, sir, that if you have scraping or automation tools that work for Cisco’s CLI, you could take those and run it against Arista’s switches; you’ve said that, right?” A: “I believe so, yes.”), 297:14-303:22, 310:11-311:7, 321:15-25; Deposition Testimony of Anshul Sadana (Arista SVP of Customer Engineering) at 207:7-209:14, 233:3-236:17, 251:3-252:9, 277:14-278:15; Deposition Testimony of Adam Sweeney (Arista VP of Software Engineering) at 210:7-211:21, 130:14-131:4, 131:14-131:24, 308:3-18, 309:2-8, 317:4-16; Deposition Testimony of Lincoln Dale (Arista Distinguished Engineer) at 300:16-301:17; Deposition Testimony of Mark Foss (Arista SVP of

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140. In my opening report and in this report (*supra*), I have explained in great detail that it is my opinion that Cisco’s copyrighted works are the subject of substantial creativity and expression; that the Cisco copyrighted works are not “industry standard”; that the Cisco copyrighted works are not required for interoperability or for interacting with routers or switches from different vendors; and that Cisco has always maintained that its copyrighted works are proprietary. Accordingly, I incorporate all of those opinions here by reference as they relate to the “nature of the copyrighted work” factor.

C. **“The amount and substantiality of the portion used in relation to the copyrighted work as a whole”**

141. I have been informed that the analysis under this factor can take into account both qualitative and quantitative copying. I further understand and have been informed that copying key expressions from a work, *e.g.*, those that may be the “heart and soul” of a work, is a consideration as well even if the quantitative amount may not be large. I further understand that individual elements or components of registered copyrights can constitute, for purposes of fair use, their own works.

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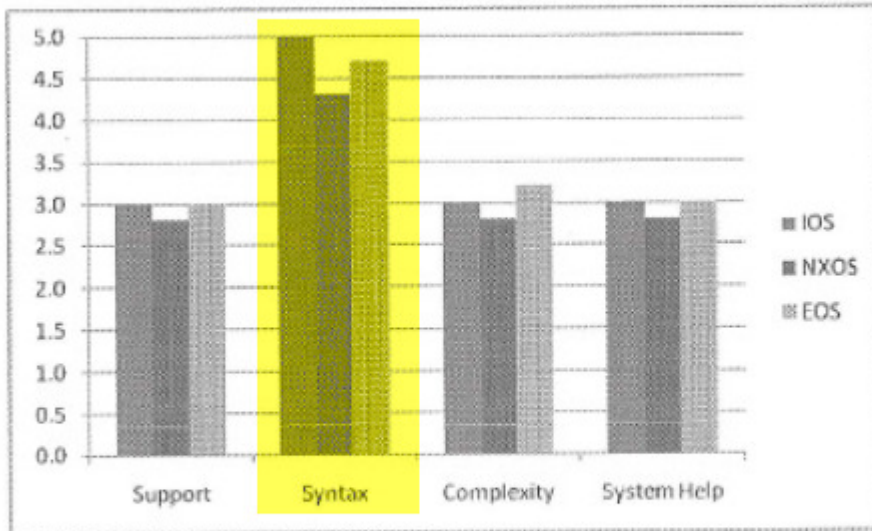
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### Overall Performance



Commentary: Overall, success in adjustment is a factor of how well the platform meets or exceeds the behavior expected by the IOS user. Both platforms performed well, and the tests showed that the level of adjustment for an IOS platform to either would be small.

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I have attempted to remove duplicates and non-multi-word outputs. Furthermore, not all of these are identical matches; for those that are not identical, they are at least within a 75% hit range on a per command help description basis, which in my opinion shows copying as well. Furthermore, these are significant because they are not only evidence that Arista copied output displays but that Arista incorporated them into its source code, which rebuts Arista’s claim (and its experts’ claims) that Arista wrote all of its EOS source code from scratch. Lastly, the 579 total does not account for the examples I provided in my report starting at Paragraph 127 that are not listed in Exhibit-6, which account for roughly 30 additional examples, which brings the total to 609.

b. With respect to output displays, Exhibit-3 to my opening report lists 37 different examples of copied outputs, and I also included the copied “help screen” in my opening report, which raises the total of exemplary output displays copied to 38.

However, I note that these displays were copied into 11 different Arista user manuals<sup>153</sup> and from 18 unique Cisco documents over time.<sup>154</sup> So, in total, there are 324 instances of

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<sup>153</sup> Arista User Manual v. 4.10.0 (7/19/2012); Arista User Manual v. 4.11.1 – Rev 2 (1/22/2013); Arista User Manual v. 4.11.2.1 (3/1/2013); Arista User Manual v. 4.12.4 (9/16/2013); Arista User Manual v. 4.13.6F (4/14/2014); Arista User Manual v. 4.13.7M (6/17/2014); Arista User Manual v. 4.14.3F – Rev. 2 (10/2/2014); Arista User Manual v. 4.14.5F – Rev. 2 (12/22/2014); Arista User Manual v. 4.14.6M (1/19/2015); Arista User Manual v. 4.15.0F (4/18/2015); Arista User Manual v. 4.15.0F – Rev. 2 (4/27/2015).

<sup>154</sup> Cisco Configuration Fundamentals Configuration Guide, Cisco IOS Release 15M&T (2013); Cisco IOS Asynchronous Transfer Mode Command Reference (2011); Cisco IOS Asynchronous Transfer Mode Command Reference (2013); Cisco IOS Interfaces and Hardware Component Command Reference (2013); Cisco IOS IP Addressing Services Command Reference at 22 (2011); Cisco IOS IP Routing Protocols Command Reference, Release 12.4 (2005), at IP2R-553; Cisco IOS IP Routing:OSPF Command Reference (2013); Cisco IOS Multicast Command Reference at 625 (2013); Cisco IOS Security Command Reference Commands S to Z (July 2011); Cisco IOS SNMP Support Command Reference (2011); Cisco IOS SNMP Support Command Reference (2013); Cisco Nexus 7000 Series NX-OS Interfaces Command Reference (August 2013); Cisco Nexus 7000 Series NX-OS Multicast Routing Command Reference (August 2013); Cisco Nexus 7000 Series NX-OS Multicast Routing

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Arista copying these 37 outputs into its documents in addition to copying them into EOS itself. I also note that I provided additional examples of similar outputs in my opening report that Arista created for a sale presentation.<sup>155</sup> These examples further confirm the large amount of copying.

c. With respect to the copying of Cisco’s technical documents (excluding the outputs discussed previously), Exhibit-1 to my opening report shows roughly 531 copying examples from 107 unique Cisco documents. In total, Exhibit-1 shows 2522 instances of Arista copying Cisco’s technical documents.

d. Arista copied 8 out of 8 modes in 15 different versions of EOS, as shown in Exhibit-4 to my opening report.

e. Arista copied 8 out of 8 prompts in 15 different versions of EOS, as shown in Exhibit-4 to my opening report.

f. Arista copied 11 command expression hierarchies across 15 different versions of EOS, as shown in Exhibit-5 to my opening report.

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Configuration Guide (2012); Cisco Nexus 7000 Series NX-OS Security Command Reference (August 2013), at SEC-661; Cisco Nexus 7000 Series NX-OS System Management Command Reference (August 2013); Cisco Nexus 7000 Series NX-OS System Management Command Reference, Release 5.x (April 2010); Cisco Nexus 7000 Series NX-OS Unicast Routing Command Reference (August 2013).

<sup>155</sup> Almeroth Opening Report Para 219 (citing ARISTANDCA1224429).

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150. Industry analysts have confirmed my opinions as well. An article published in CRN in 2014 stated: “[Arista] created a CLI [command-line interface] that looks and acts very much like Cisco’s...there are a lot of folks out there that are proficient with the Cisco command-line and user interface. Arista is a real natural fit for them.”<sup>163</sup> Another third-party commented

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<sup>163</sup> <http://www.crn.com/print/news/networking/300073307/arista-partners-our-business-is-booming-as-competition-with-cisco-heats-up.htm?page=0%2C1> (viewed 5/18/2016) (emphasis added).

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on the similarity between the two CLIs as follows: “Arista provides a CISCO like CLI, when I say ‘CISCO like’ I mean it’s 95% the same commands...”<sup>164</sup>

151. IOS and its documents comprise a compilation of many different groupings of creative expressions (not unlike an encyclopedia), some of which have no bearing on this case. Indeed, each IOS version has numerous “books” (as Cisco refers to them from time to time) that address different groups of commands and related outputs. For example, Cisco has documents for mobile devices, embedded technology, and networking (among many others).<sup>165</sup> Thus, from a technical perspective it would be misleading and incorrect to assume that every document in the compilation of “registered” works would be relevant to the analysis of what Cisco alleges to have been copied here. What is relevant are the works related to Ethernet switches/routers. And in my professional opinion as a computer scientist and engineer, other engineers and computer scientists would know the difference between what is relevant to Ethernet switch/router technology and what is not.

152. With this background in mind, it is my opinion that Ms. Elsten’s conclusion that only 5% of Cisco’s IOS commands were copied is incorrect.<sup>166</sup> Ms. Elsten did not account for the fact that IOS is a multi-faceted operating system and thus includes groups or “books” of command expressions that are irrelevant to the Ethernet switches/routers at issue here (let alone account for copying of other covered elements such as documents, displays, modes, prompts, etc., which she does not address at all). As a result, her calculation includes an inflated denominator, which results in a percentage of command expression copying that is much lower

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<sup>164</sup> <https://cybermashup.com/2014/01/20/first-steps-with-arista-networks/> (viewed 5/27/2016) (emphasis added).

<sup>165</sup> See, e.g., CSI-CLI-00084839 (IP Mobility: Mobile Networks Configuration Guide, Cisco IOS Release 15M&T); CSI-CLI-00085923 (MPLS: Embedded Management and MIBs Configuration Guide, Cisco IOS Release 15M&T).

<sup>166</sup> Elsten at 19-20.



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the market in an “[un]conventional way.”<sup>169</sup> For example, Arista’s CEO stated: “Since I helped build the enterprise, I would never compete with Cisco directly in the enterprise in a conventional way. It makes no sense. It would take me 15 years and 15,000 engineers, and that’s not a recipe for success.”<sup>170</sup> As a result of this strategy, Arista is now, according to its CEO, a fierce competitor with Cisco.<sup>171</sup> Additionally, Arista has explained that its use of Cisco’s copyrighted works was targeted at winning customers from Cisco—as Arista can market its products as an easily implemented alternative to Cisco products for Cisco’s existing customers.<sup>172</sup>

158. As I have stated previously, Cisco’s copyrighted works are, from a technical perspective, important to Cisco’s products. Cisco’s copyrighted works allow the switches and routers to work, teach customers how to use those products, and allow customers to interact with the products. And, with respect to the IOS CLI that is part of the copyrighted works, Arista has copied the entire “look and feel” of that element, which from a technical perspective is the core of the IOS operating system experience—it is the element by which users interact and recognize Cisco’s IOS, and as a result they are going to be most familiar with it. As I stated above, Arista’s cloning of Cisco’s copyrighted works has been so robotic that, in my opinion, a network

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<sup>169</sup> Almeroth Opening Report Paras. 70, 147-148.

<sup>170</sup> *See, e.g.*, Adam Lashinsky, “An Ex-Cisco Exec Reflects,” *Fortune* (Mar. 20, 2014), available at <http://fortune.com/2014/03/20/an-exciscoexec-reflects/>.

<sup>171</sup> Almeroth Opening Report Para. 69; CSI-CLI-00357842 at CSI-CLI-00357851

<sup>172</sup> Almeroth Opening Expert Report Para. 257. *See, e.g.* Sadana Deposition Tr. at 236:4-17, ARISTANDCA11996066, ARISTANDCA104437, ARISTANDCA1206372, ANI-ITC-944\_945-3473603, ARISTANDCA1199299, ANI-ITC-944\_945-3927203, ARISTANDCA10499890, ARISTANDCA\_SW\_105998, CSI-ANI-00381280, ARISTANDCA11411864, ARISTANDCA10499890, ANI-ITC-944\_945-3452525, ARISTANDCA1194925, CSI-CLI-00540078, Packet Pushers Clip (Audio File) (Duda Exh. 274), Sadana Deposition, Exhibit 382, at 78, Posting of Kenneth Duda to Arista EOS Central, “Linux as a Switch Operating System: Five Lessons Learned” (Nov. 5, 2013), available at <https://eos.arista.com/linux-as-a-switch-operating-system-five-lessons-learned/>.

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engineer operating an Arista device would have a hard time knowing that he or she is not using a Cisco IOS product. That was apparent to me from the testing that I performed on both Cisco and Arista switches, as I set forth in my opening report. As a result, in my opinion Cisco is forced to compete with its own technology in the marketplace.

159. Further, as I stated in my opening report and above, I understand that Arista provides products, software, and technical support incorporating Cisco’s copyrights to its distributors and/or customers so that they use Arista’s EOS and its CLI.<sup>173</sup> Arista thus knows that its distributors and customers purchase its products to use, reproduce, distribute, and/or publicly display computer programs and/or other works that incorporate Cisco’s copyrights, including by use of Cisco’s IOS CLI—Arista has publicly admitted that at least 80% of its customers consider this infringing functionality to be an important factor in their decisions to purchase Arista’s products.<sup>174</sup> In my opinion, it is logical to conclude that Arista has knowledge that its acts contribute to and encourage its distributors’ and customers’ copying of Cisco’s copyrights as well in order to drive competition with Cisco.

160. Further, Arista has positioned and marketed EOS in the marketplace as a better copy of Cisco’s IOS operating system than Cisco’s own NX-OS operating system.<sup>175</sup> In other words, Arista tells customers that it should buy products with Arista’s EOS instead of Cisco’s NX-OS because Arista did a better job of copying than Cisco did.<sup>176</sup>

161. In addition to the foregoing, I understand that this fair use factor considers what would happen to Cisco’s market if anyone were able to make the same use that Arista has made and such use became widespread. In light of the foregoing impacts from Arista’s use alone, it is

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<sup>173</sup> Almeroth Opening Report Para. 154.

<sup>174</sup> CSI-CLI-00540078 at CSI-CLI-00540079


<sup>175</sup> Almeroth Opening Report Paras. 149-151.

<sup>176</sup> Almeroth Opening Report Paras. 149-151.

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the right to consider and testify about issues that may be raised by Arista’s fact witnesses and experts at trial. I also reserve the right to modify or to supplement my opinions as a result of ongoing expert discovery or testimony at trial.

I certify under penalty of perjury that the foregoing is true and correct.

By:   
Dr. Kevin C. Almeroth  
June 17, 2016